Tentative identification procedure for HNV Montados

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What needs to be considered ?

A **complex system** depending on the **high variance** of its main components

TREE COVER

LIVESTOCK GRAZING

PASTURES

different **biophysical conditions**
and different **management options**

functional and spatial complexity

The decisive role of management

Decisions taken at the Farm level:

Soil mobilization/Shrub control/Grazing intensity/Breeds/...

Intensification

Extensification

Changes in Biodiversity and in Landscape Structure

>>affect the multiple functions supported and sustainability of the system

HNV classification as a sustainability assessment

Given the variability in **biophysical conditions** and in **management options**,

- Which Montados can be classified as HNV?
- How different management systems affect landscape composition and biodiversity ?
- Which are **the thresholds in management** resulting in a HNV Montado, for each type ?

We need to combine:

LAND COVER

Tree cover composition

Land cover diversity

Landscape features

MANAGEMENT

Grazing pressure

Livestock composition

Fertilization

Irrigation, etc

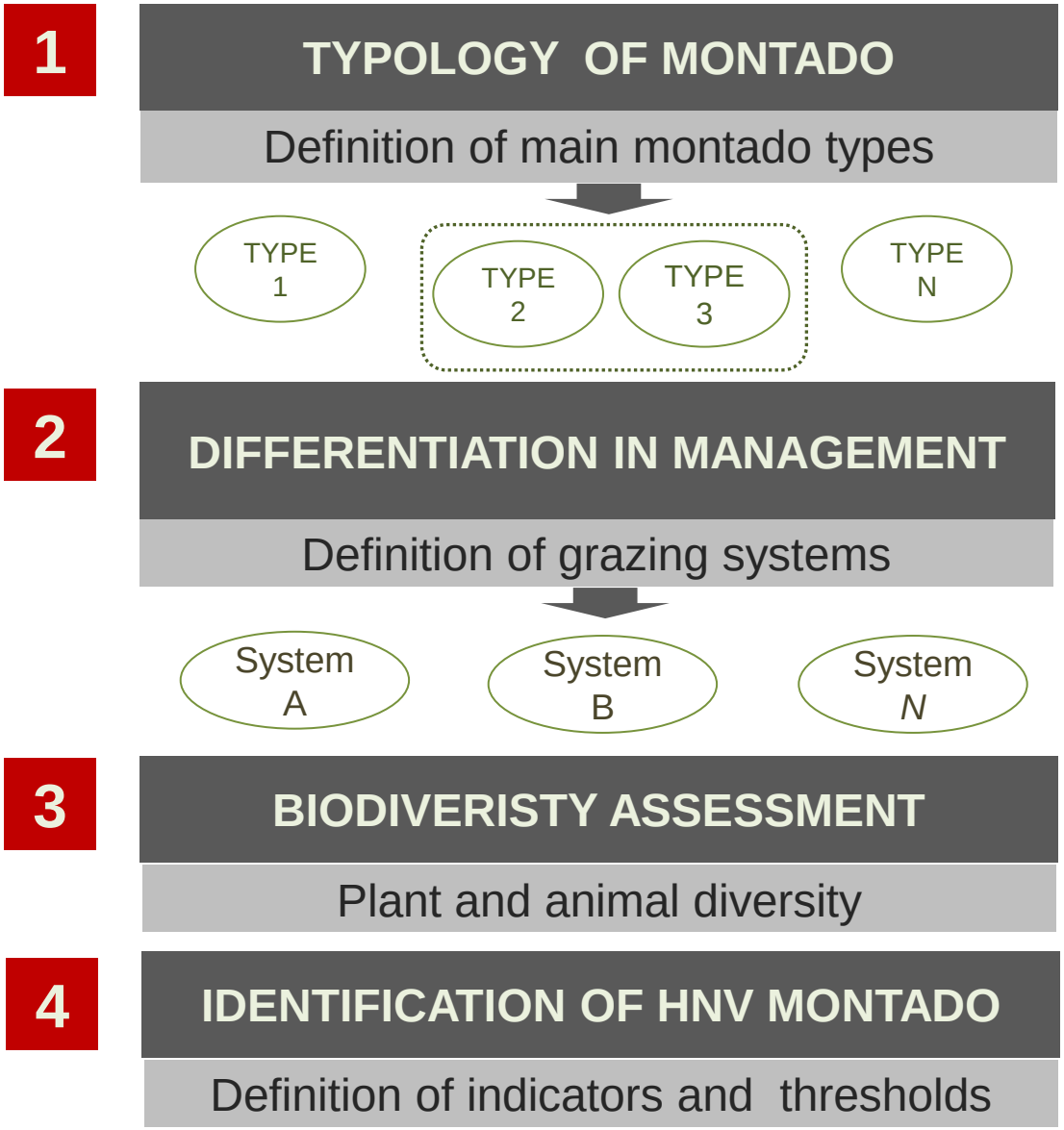
BIODIVERSITY

Undercover structure

Herbaceous species diversity

Species of conservation concern

Different steps at different scales:



1 DEFINITION OF MAIN MONTADO TYPES

A differentiation based on

Land Cover and Biophysical conditions > simplifying fuziness

BIOPHYSICAL VARIABLES

- Soil type
- Slope
- Slope direction
- Wetness

LAND COVER VARIABLES

- Rate of Montado area
- Cork oak density
- Holm oak density
- Shrub density

sampling

A < 10% Open Pastures

B 10 – 20% Clear Montado

C 20 – 50% Open Montado

D >50% Dense Montado

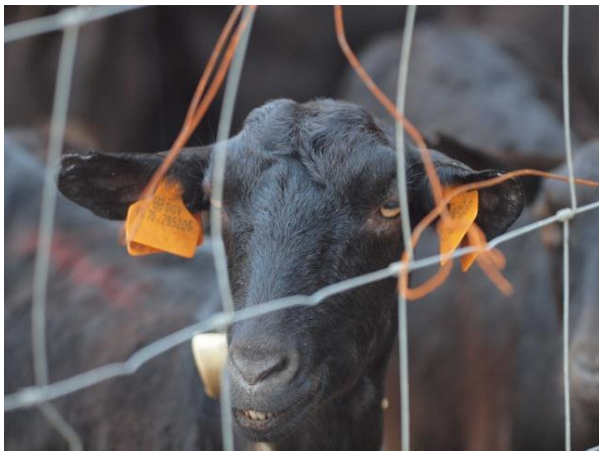
2 DEFINITION OF GRAZING SYSTEMS

Classify complex and highly variable practices:

livestock, pasture, woodland and shrub

- identification of the **grazing practices** (technological and economic components)

- **selection of criteria** to define the grazing system



Mediterranean Grazing Index MGI

Detailed fieldwork

Vegetation diversity

- tree density and spatial distribution
- shrub and herbaceous vegetation
- pasture diversity
- presence of rare, endangered or vulnerable plants species

Animal diversity

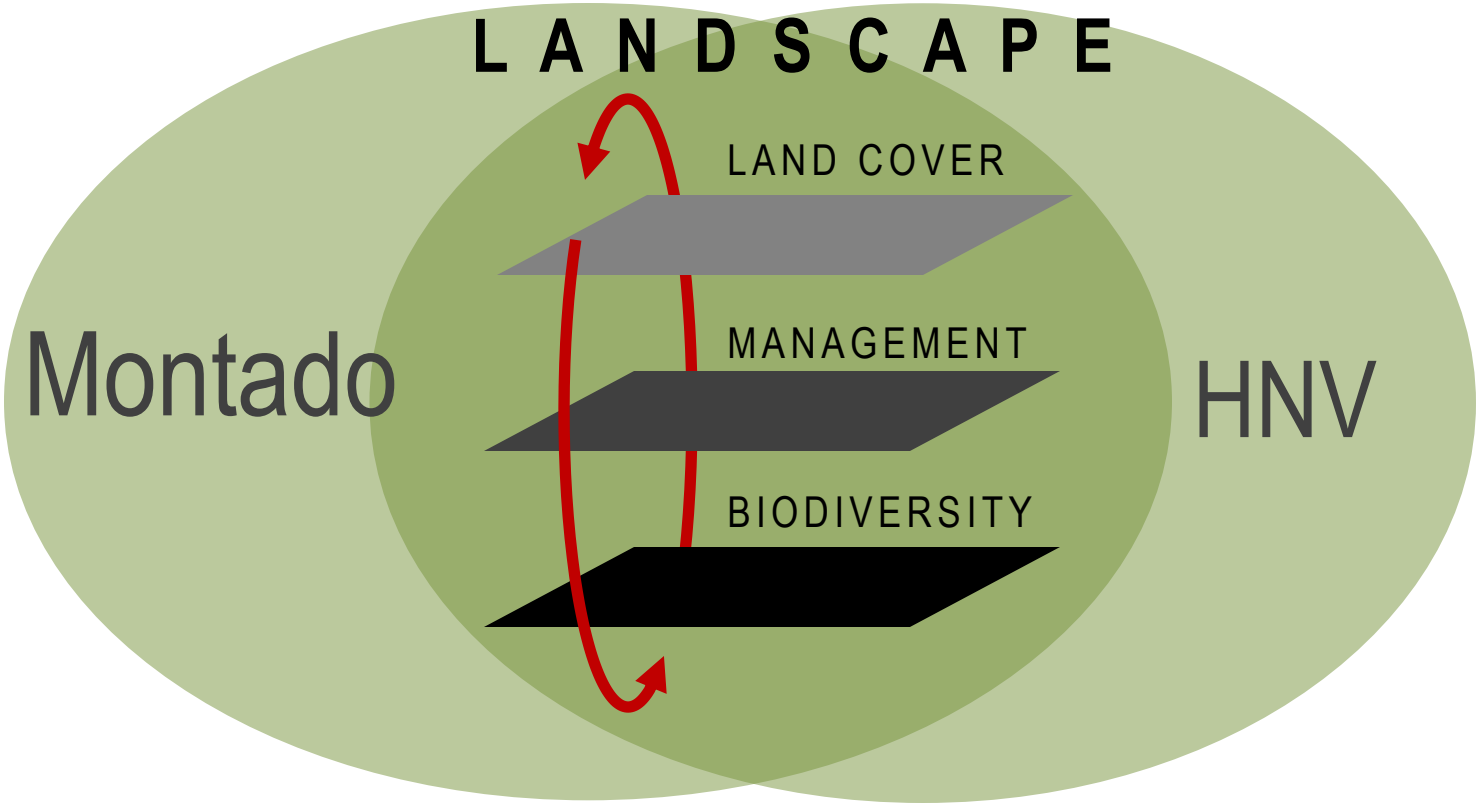
- birds and reptiles as indicators
- species detections, their numbers and micro-habitat variables

...and an integrated analysis

* **MGI** which result in high biodiversity > **trends**

*Land cover metrics = Landscape indicators for identifying and monitoring the MGI

>> a straightforward and objective approach



4 IDENTIFICATION OF THE HNV MONTADOS

- **Thresholds or ranges can indicate HNV levels**

(i) **Non-HNV**, if management practices define trends contrary to the principal criteria for HNV;

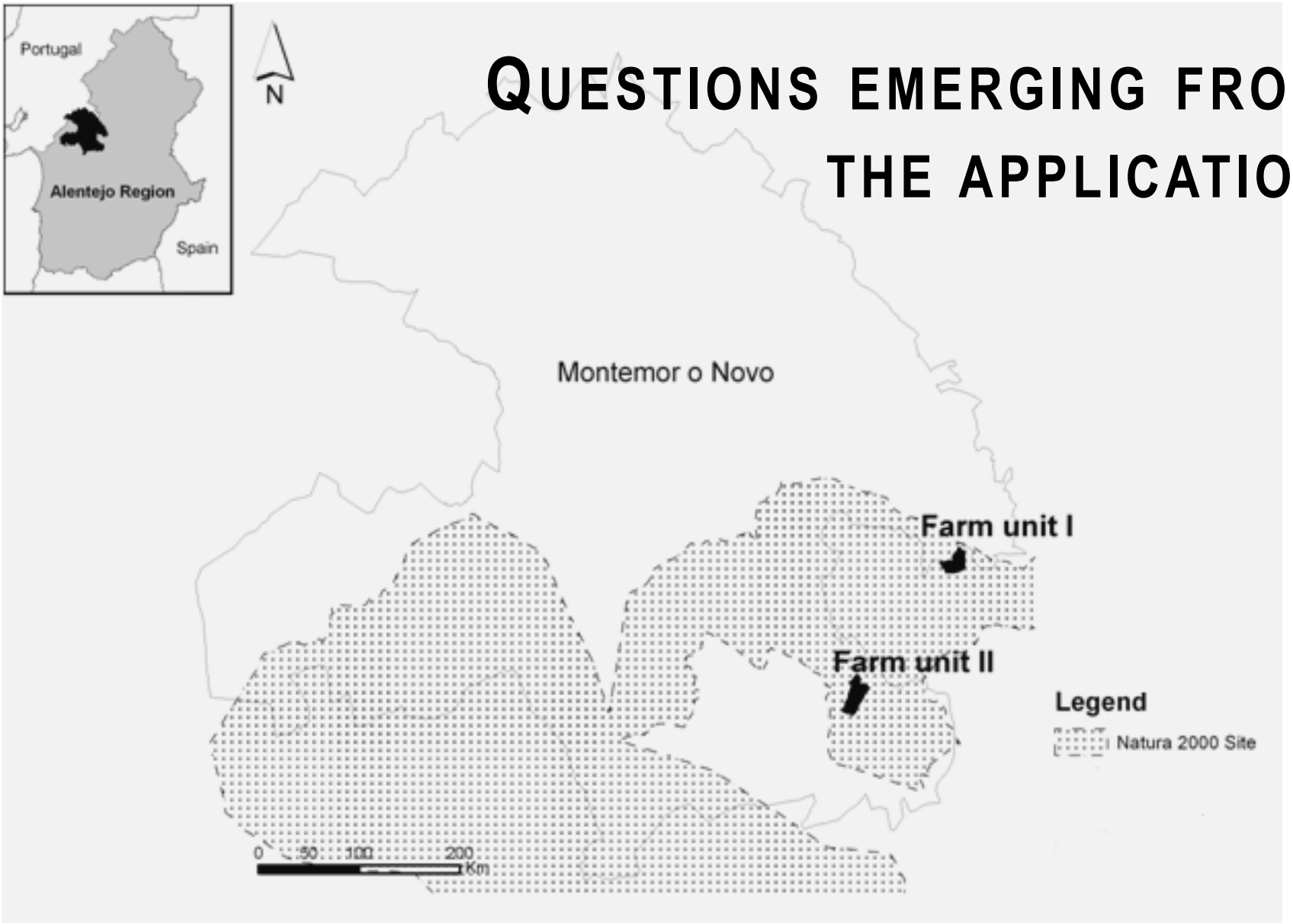
(ii) **Potentially HNV,** requiring management improvements in order to achieve a higher balance of the components;

(iii) **Currently HNV**, meeting the principal criteria; and

(iv) **Very High Nature Value,** if the management practices ensure high and long term standard of HNV

EXAMPLE

QUESTIONS EMERGING FROM THE APPLICATION

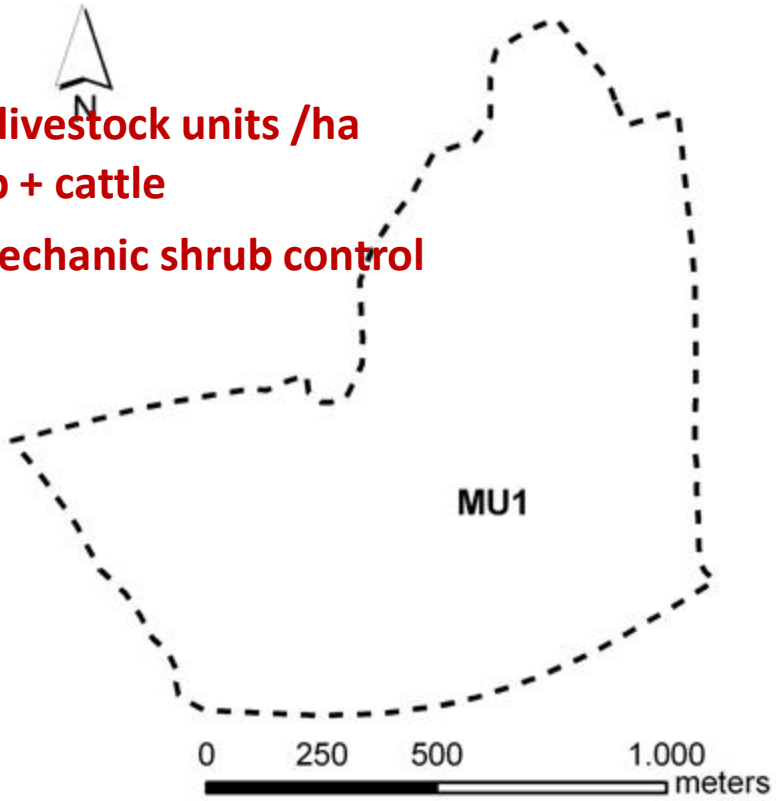


Farm I

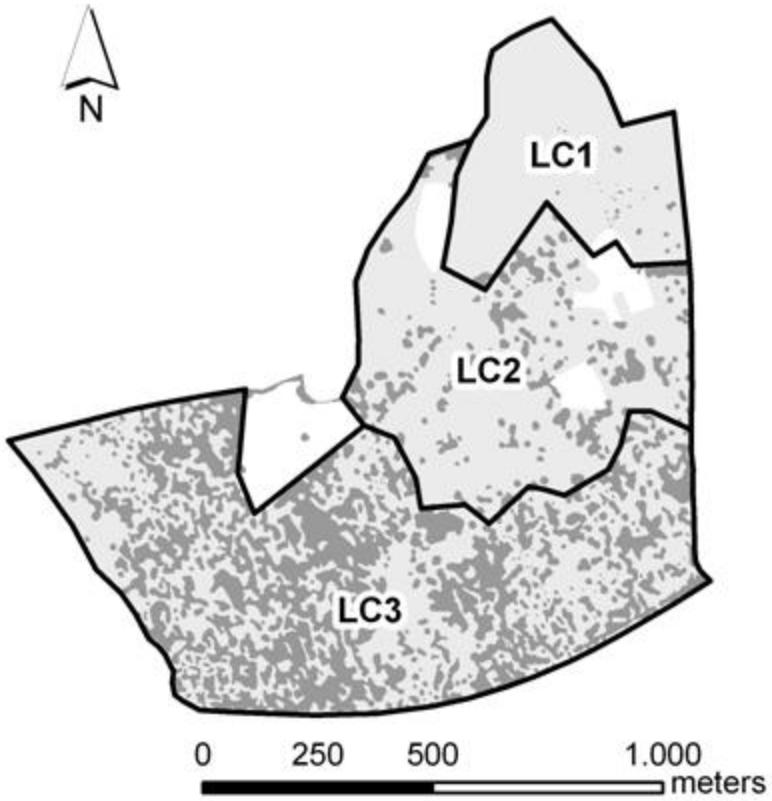
Management units

0,79 livestock units /ha
sheep + cattle

No mechanic shrub control

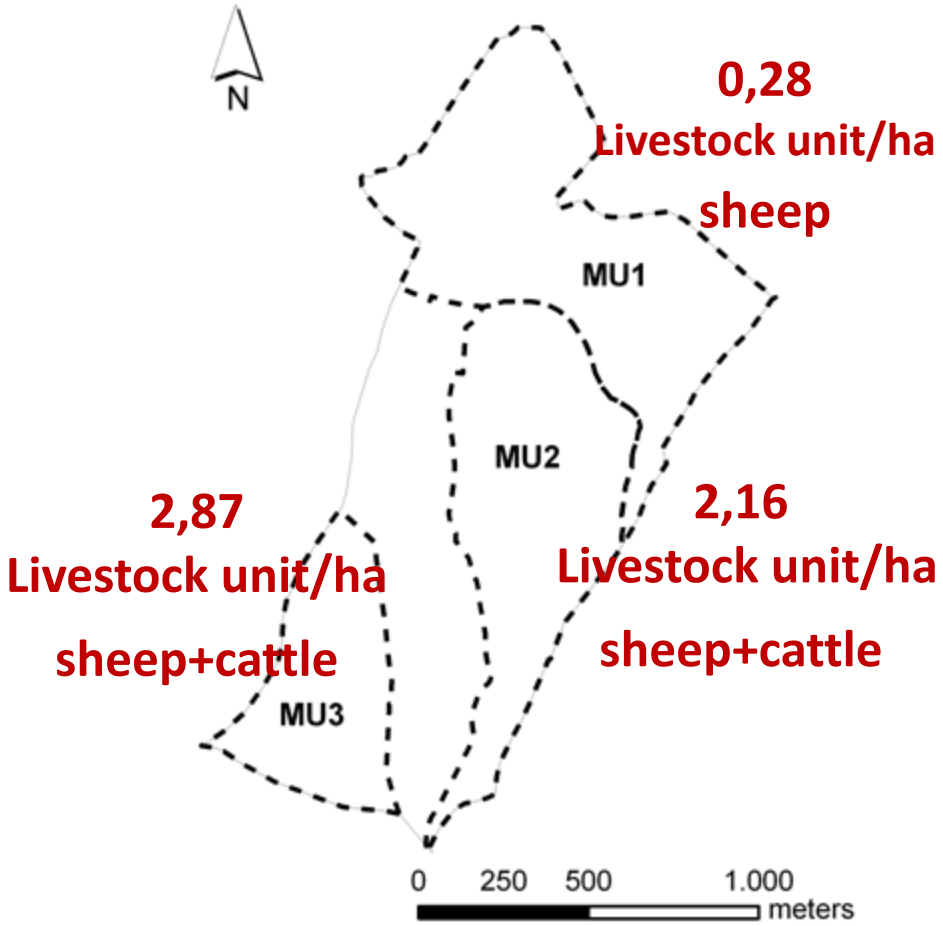


Land cover units

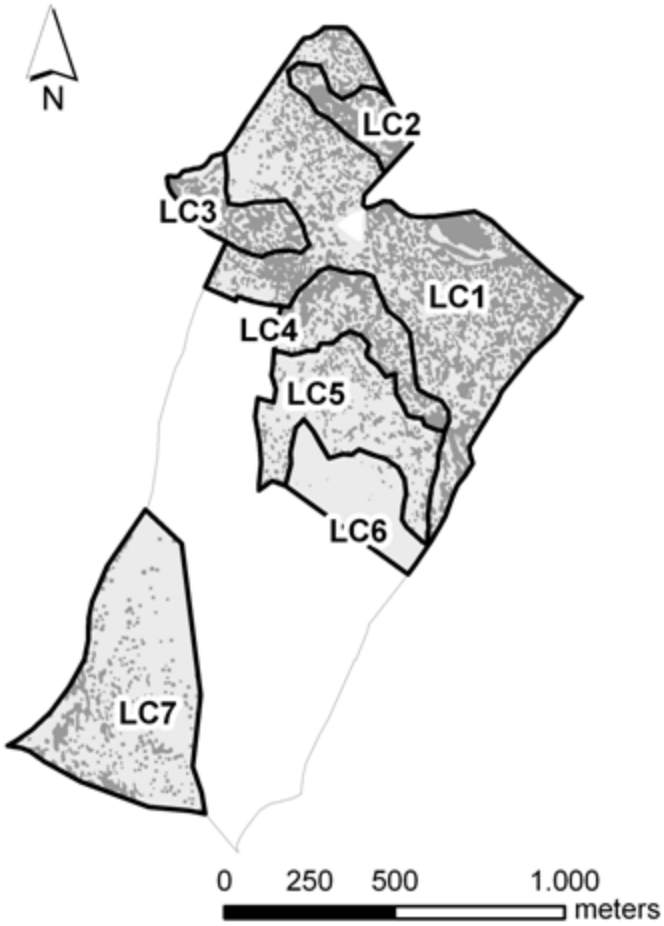


Farm II

Management units



Land cover units



No mechanic shrub control

Some clear research paths ....
but many open questions

* Air images and land cover classification are
a very rich and highly reliable source of information
* Management practices define the HNV
* Land cover patterns reflect management practices
* We can classify extremely fuzzy land cover patterns and
we can define different but interlinked samples

BUT

** Can we relate patterns to management ??
** Is the temporal dimension included ??
** What should be the analysis unit ??
** Which scale is the most adapted ??

... work in progress